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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re:

U.S. Patent No:

6,866,024 B2

Inventors:

Rizzoni et al.

Issued:

March 15, 2005

Serial No.:

10/092,031

Examiner:

John T. Kwon

Group Art Unit:

3747

Title:

ENGINE CONTROL USING TORQUE ESTIMATION

Llond

Trisha M. Beachy-Bryant, Paralegal

Docket No.:

OSU1159-148B

CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. §1.8 (A)

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Judy M. Blally Braud

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

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CERTIFICATE OF MAILING UNDER 37 C.F.R. \$1.8 (A) / 2005

Date of Deposit:

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riana M. Beachy, Paralegal

Şir:

REQUEST FOR CERTIFICATE OF CORRECTION PURSUANT TO 37 C.F.R. 1.322

Transmitted herewith is a Certificate of Correction for the above-identified patent.

Upon reviewing the patent, the patentee noted that the following typographical errors were made by the Patent and Trademark Office, which should be corrected as follows:

U.S. Patent No. 6,866,024 B2 Request for Certificate of Correction Page 2 of 5

In column 4, lines 46-54.

 $a_0\Sigma 1 + a_1\Sigma x_{4,k} + a_2\Sigma x_{2,k} + a_3\Sigma x_{3,k} + a_4\Sigma x_{4,k} = \Sigma y_{ineq,k}$ please delete " a_Xx1_4+a_Xx1_2+a_2x1_4x2_4a2X1_4x3_4a4X21_4x44=Xx1.4X1+44 $a_0\Sigma x_{3,k}+a_2\Sigma x_{3,k}x_{3,k}+a_2\Sigma x_{2,k}x_{3,k}+a_3\Sigma x_{3,k}^2a_4\Sigma x_{4,k}x_{3,k}-\Sigma x_{3,k}y_{sm,k}$ $a_0 \sum_{x_{4,k}} + a_1 \sum_{x_{2,k}} x_{4,k} + a_2 \sum_{x_{2,k}} x_{4,k} + a_3 \sum_{x_{3,k}} x_{4,k} + a_4 \sum_{x_{4,k}} x_{4,k} + a_5 \sum_{x_{4,k}} x_{4,k}$

and insert - $a_0 \sum 1 + a_1 \sum x_{1,k} + a_2 \sum x_{2,k} + a_3 \sum x_{3,k} + a_4 \sum x_{4,k} = \sum y_{transk}$ $a_0 \sum x_{i,k} + a_i \sum x_{i,k}^2 + a_2 \sum x_{i,k} x_{2,k} + a_3 \sum x_{i,k} x_{3,k} + a_4 \sum x_{i,k} x_{3,k} = \sum x_{i,k} y_{irred}$ $a_1 \sum x_{2k} + a_2 \sum x_{2k} + a_2 \sum x_{2k}^2 + a_2 \sum x_{2k} + a_2 \sum x_{2k} + a_2 \sum x_{2k} x_{2k} = \sum x_{2k} y_{max}$ $a_1 \sum x_{1k} + a_2 \sum x_{1k} x_{2k} + a_2 \sum x_{2k} x_{2k} + a_3 \sum x_{2k}^2 + a_4 \sum x_{4k} x_{2k} = \sum x_{2k} y_{instal}$ $a_0 \sum x_{i,k} + a_j \sum x_{i,k} x_{i,k} + a_2 \sum x_{2,k} x_{i,k} + a_3 \sum x_{2,k} x_{i,k} + a_4 \sum x_{i,k}^2 = \sum x_{i,k} y_{imide}$

In column 7, line 37,

and insert – Estimated Value =
$$F(f_{\theta}, \tilde{\theta}, \ddot{\theta})$$
 (5) –

in column 7, line 48,

please delete "
$$P_{extimate} = a_0 + a_{1f0} + a_2 f_0 + a_3 f_0 + a_4 + a_4 + a_5 + a_6 + a_6$$

and insert –
$$P_{estimate} = a_0 + a_1 f_\theta + a_2 f_\theta \ddot{\theta} + a_3 f_\theta \ddot{\theta} + a_4 \ddot{\theta} \ddot{\theta}$$
 (6) –.

U.S. Patent No. 6,865,024 B2 Request for Certificate of Correction Page 3 of 5

In column 9, lines 40-61,

please delete "

TABLE 5

Various Basis Functions

Elecation.

	Number	Basis Function
•	1	$T_{\text{cationate}} = a_0 + a_1 \mathcal{L}_0 + a_2 \bar{\theta} + a_3 \theta$
	2	$T_{\text{submate}} = a_0 + a_1 f_\theta + a_2 \tilde{\theta} + a_3 \theta + a_4 \tilde{\theta}^2$
	3	$T_{\rm cutinum} = a_0 + a_1 f_\theta + a_2 f_\theta \ddot{\theta} + a_3 f_\theta \ddot{\theta} + a_4 \ddot{\theta} \ddot{\theta}$
	4	$T_{\text{extinues}} = a_0 + a_1 f_0 + a_2 f_0 \tilde{\theta} + a_3 f_0 \tilde{\theta} + a_4 f_0 \tilde{\theta} + a_5 f_0 \tilde{\theta} + a_6 \tilde{\theta} \tilde{\theta}$
	5	$T_{\text{submate}} = \mathbf{a}_0 + \mathbf{a}_1 \mathbf{f}_\theta + \mathbf{a}_2 \tilde{\theta} + \mathbf{a}_3 \tilde{\theta} + \mathbf{a}_4 \mathbf{f}_\theta^2 + \mathbf{a}_5 \mathbf{f}_\theta \tilde{\theta}^2 + \mathbf{a}_6 \tilde{\theta}^2$
	6	$T_{\text{extinuous}} = a_0 + a_1 f_\theta + a_2 f_\theta \bar{\theta} + a_3 f_\theta \bar{\theta} + a_4 \bar{\theta}^2 + a_5 \bar{\theta} \bar{\theta} + a_6 \bar{\theta}^2$
•	7	$T_{\text{cutimum}} = a_0 + a_1 \mathcal{C}_0 + a_2 \tilde{\theta} + a_3 \tilde{\theta} + a_4 \mathcal{C}_0^2 + a_5 \tilde{\theta}^2 + a_5 \tilde{\theta}^2 + a_5 \tilde{\theta}^2$ $a_5 [a_5 \tilde{\theta} + a_5 f_5 \tilde{\theta}^2 + a_5 \tilde{\theta}^2 + a_5 \tilde{\theta}^2 + a_5 \tilde{\theta}^2]$

and insert - Table 5. Various Basis Functions

Function Number	Basis Function
1	$T_{\text{estimate}} = a_0 + a_1 f_{\theta} + a_2 \dot{\hat{\theta}} + a_3 \ddot{\theta}$
2	$T_{\text{estimate}} = a_0 + a_1 f_{\theta} + a_2 \dot{\theta} + a_3 \ddot{\theta} + a_4 \dot{\theta}^2$
3	$T_{\text{estimate}} = a_0 + a_1 f_{\theta} + a_2 f_{\theta} \ddot{\theta} + a_3 f_{\theta} \ddot{\theta} + a_4 \dot{\theta} \ddot{\theta}$
4	$T_{\text{extinents}} = a_0 + a_1 f_{\theta} + a_2 \tilde{\theta} + a_3 \tilde{\theta} + a_4 f_{\theta} \tilde{\theta} + a_5 f_{\phi} \tilde{\theta} + a_6 \tilde{\theta} \tilde{\theta}$
5	$T_{cstimate} = a_0 + a_1 f_{\theta} + a_3 \tilde{\theta} + a_3 \tilde{\theta} + a_4 f_{\theta}^2 + a_5 \tilde{\theta}^2 + a_6 \tilde{\theta}^2$
8	$T_{\text{astimats}} = a_0 + a_1 f_\theta + a_2 f_\theta \hat{\theta} + a_3 f_\theta \hat{\theta} + a_4 \hat{\theta}^2 + a_5 \hat{\theta}^2 + a_5 \hat{\theta}^2$
7	$T_{\text{estimate}} = a_0 + a_1 f_{\theta} + a_2 \tilde{\theta} + a_3 \tilde{\theta} + a_4 f_{\theta}^2 + a_5 f_{\theta} \tilde{\theta} + a_6 f_{\theta} \tilde{\theta} + a_7 \tilde{\theta}^2 + a_8 \tilde{\theta} \tilde{\theta} + a_9 \tilde{\theta}^2$

U.S. Patent No. 6,866,024 B2 Request for Certificate of Correction Page 4 of 5

Apr-21-06 14:50

In column 13, lines 26-44.

please delete "

TABLE 6

6147925536

	Various Sub-Basis Functions	
Function Number	Sub-Basis Function	
1	$\mathbf{a}_i = \mathbf{b}_{0,i} + \mathbf{b}_{1,i} \cdot \mathbf{rpm} + \mathbf{b}_{2,i} \cdot \mathbf{ltq}$	
2	$a_1 = b_0 + b_1 \cdot com + b_1 \cdot com + b_2 \cdot com \cdot com$	
3	$a_1 = b_{11} + b_{12} + com + b_{22} + itq + b_{21} + com^2 + b_{41} + itq^2$	
4	$a_1 = b_{01} + b_{11} \cdot rpm + b_{21} \cdot ltq + b_{21} \cdot rpm \cdot ltq + b_{41} \cdot rpm^2 + b_{41} \cdot ltq^2$	
5	$a_1 = b_{0,1} + b_{1,1} \cdot \text{rpm} + b_{2,1} \cdot \text{ltq} + b_{3,1} \cdot \text{rpm} \cdot \text{ltq} + b_{3,1} \cdot \text{rpm} \cdot \text{ltq} + b_{3,1} \cdot \text{rpm} \cdot \text{ltq}$	
6	$a_1 = b_{0,1} + b_{1,1} \cdot \text{rpm} + b_{2,1} \cdot \text{ltq} + b_{3,1} \cdot \text{rpm}^2 \cdot rp$	
7	$\mathbf{s}^1 = \mathbf{p}^{01} + \mathbf{p}^{21} \cdot \mathbf{tbw} + \mathbf{p}^{21} \cdot \mathbf{p} + \mathbf{p}^{21} \cdot \mathbf{q}^2$	
8	$\mathbf{a}_1 = \mathbf{b}_{0,1} + \mathbf{b}_{1,1} \cdot \operatorname{rpm} + \mathbf{b}_{2,1} \cdot \operatorname{liq} + \mathbf{b}_{2,1} \cdot \operatorname{liq} + \mathbf{b}_{2,1} \cdot \operatorname{rpm} + \mathbf{b}_{2,1} \cdot \operatorname{liq} $	
9	$a_1 = b_{0,1} + b_{3,1} \cdot \text{rpm} + b_{2,1} \cdot \text{liq} + b_{3,1} \cdot \theta_0 + b_{4,1} \cdot \text{rpm} \cdot \theta_0 + b_{5,1} \cdot \text{liq} \cdot \theta_0 + b_{4,1} \cdot \theta_0^2 + b_{5,1} \cdot \text{rpm} \cdot \theta_0^2 + b_{6,1} \cdot \text{liq}^2 \cdot \theta_0^2$	

and insert - Table 6. Various Sub-Basis Functions

Function Number	Sub-Basis Function
1	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq$
2	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq$
3	$a_{i} = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm^{2} + b_{4,i} \cdot ltq^{2}$
4	$a_{i} = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq + b_{4,i} \cdot rpm^{2} + b_{5,i} \cdot ltq^{2}$
6	$a_{i} = b_{0,i} + b_{i,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq + b_{4,i} \cdot rpm^{2} + b_{5,i} \cdot ltq^{2} + b_{6,i} \cdot rpm^{2} \cdot ltq^{2}$
6	$a_{1} = b_{0,1} + b_{1,1} \cdot rpm + b_{2,1} \cdot liq + b_{3,1} \cdot rpm \cdot liq$ $+ b_{4,1} \cdot rpm^{2} + b_{5,1} \cdot liq^{2} + b_{6,1} \cdot rpm^{2} \cdot liq$ $+ b_{7,1} \cdot rpm \cdot liq^{2} + b_{8,1} \cdot rpm^{2} \cdot liq^{2}$
. 7	$a_1 = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta,$

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From-Standley Law Group LLP

8	$a_{i} = b_{0j} + b_{1i} \cdot rpm + b_{2j} \cdot ltq$ $+ b_{3i} \cdot \theta_{s} + b_{4j} \cdot rpm \cdot \theta_{s} + b_{5i} \cdot ltq \cdot \theta_{s}$
9	$a_{i} = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta_{s}$ $+ b_{4,i} \cdot rpm \cdot \theta_{s} + b_{5,i} \cdot ltq \cdot \theta_{s} + b_{6,i} \cdot \theta_{s}^{2}$ $+ b_{7,i} \cdot rpm \cdot \theta_{s}^{2} + b_{8,i} \cdot ltq^{2} \cdot \theta_{s}^{2}$

In column 13, lines 51-53,

please delete "
$$\varepsilon = \min_{b_{j,i}} \left(\sum_{i=1}^{N} (a_{trained,i} - a_{estimated,i})^{2} \right)$$
and insert – $\varepsilon = \min_{b_{j,i}} \left(\sum_{i=1}^{N} (a_{trained,i} - a_{estimated,i})^{2} \right)$ (23) –,

A review of the Application as submitted and thereafter as amended, confirms that the errors were made in the printing of the patent.

Since the above noted errors for which a Certificate of Correction is sought were a result of Patent Office mistake, no fee is due (35 U.S.C. § 254). Approval of the Certificate of Correction respectfully is solicited.

Respectfully submitted,

Date: <u>April, 14, 2005</u>

By:

Carol G. Stovsky Registration No. 42,171

Standley Law Group LLP

495 Metro Place South, Suite 210

Dublin, Ohio 43017-5315 Telephone: 614/792-5555 Facsimile: 614/792-5536

Page 1 of 7

PT()/SB/44 (04-04)

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO

: 6,886,024 B2

DATED

: March 15, 2005

INVENTOR(S) : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 4, lines 46-54,

please delete "

a 21+a 2x 1.4+a 2x 2.4+a 3x 3,4+a 4 2x 4.4= 2y 044.4

a_Xx2_4+a_Xx1_4x2_4+a2Xx2_2*+a3Xx2_4x3_6+a4Xx2_4x4,4=Xx269buck

802x3+012x14x34+02Xx24x34+032x34²042x44x34=2x342\mak

 $a_0\Sigma x_{4,k}+a_1\Sigma x_{4,k}+a_2\Sigma x_{2,k}x_{4,k}+a_3\Sigma x_{2,k}x_{4,k}+a_4\Sigma x_{4,k}^2=\Sigma x_{4,k}$

and insert – $a_1 \sum l + a_1 \sum x_{ik} + a_2 \sum x_{2k} + a_3 \sum x_{3k} + a_4 \sum x_{3k} = \sum y_{mask}$

 $a_1 \sum x_{ik} + a_1 \sum x_{ik}^2 + a_2 \sum x_{ik} x_{2k} + a_3 \sum x_{ik} x_{3k} + a_4 \sum x_{ik} x_{4k} = \sum x_{ik} y_{insk}$

 $a_0 \sum x_{2k} + a_1 \sum x_{1k} x_{2k} + a_2 \sum x_{2k} + a_3 \sum x_{2k} x_{3k} + a_4 \sum x_{2k} x_{4k} = \sum x_{2k} y_{insk}$

 $a_0 \sum x_{2k} + a_1 \sum x_{1k} x_{2k} + a_2 \sum x_{2k} x_{2k} + a_3 \sum x_{2k}^2 + a_4 \sum x_{2k} x_{2k} = \sum x_{2k} y_{insk}$

 $a_0 \sum x_{i,k} + a_1 \sum x_{i,k} x_{i,k} + a_2 \sum x_{i,k} x_{i,k} + a_2 \sum x_{i,k} x_{i,k} + a_4 \sum x_{i,k} = \sum x_{i,k} y_{i,m,k}$

MAILING ADDRESS OF SENDER:

PATENT NO. 6,866,024 B2

Carol G. Stovsky Standley Law Group LLP 495 Metro Place South

Suite 210 Dublin, OH 43017-5319 No. of additional copies

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORKS TO THIS ADDRESS, SEND TO: Attention Cartificate of Corrections Branch, Coranissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO

: 6,866,024 B2

DATED

: March 15, 2005

INVENTOR(S) : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 7, line 37,

please delete "

Estimated Value=F(fm05,0)

(5)

and insert – Estimated Value = $F(f_{\theta}, \tilde{\theta}, \ddot{\theta})$

In column 7, line 48,

please delete "

$$P_{\text{astimete}} = a_0 + a_{1/\theta} + a_2 f_{\theta} \theta + a_2 f_{\theta} \theta + a_4 \theta$$

and insert -
$$P_{\text{estimate}} = a_0 + a_1 f_\theta + a_2 f_\theta \ddot{\theta} + a_3 f_\theta \ddot{\theta} + a_4 \ddot{\theta} \ddot{\theta}$$
 (6) -.

MAILING ADDRESS OF SENDER:

PATENT NO. 6,866,024 B2

Carol G. Stovsky Standley Law Group LLP

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO

: 6,868,024 B2

DATED

: March 15, 2005

INVENTOR(8) : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 9, lines 40-61,

TABLE 5

please delete "

	Various Basis Functions	
Function Number	Basis Function	ı
1	$T_{\text{estimate}} = a_0 + a_1 \ell_0 + a_2 \bar{\theta} + a_3 \theta$	
2	$T_{culimate} = a_0 + a_1 f_0 + a_2 \ddot{\theta} + a_3 \ddot{\theta} + a_4 \ddot{\theta}^2$	
. 3	$T_{\text{cutimete}} = a_0 + a_1 f_0 + a_2 f_0 \vec{\theta} + a_3 f_0 \vec{\theta} + a_4 \vec{\theta} \vec{\theta}$	•
4	$T_{\text{cottends}} = a_0 + a_1 f_0 + a_2 f_0 \ddot{\theta} + a_3 f_0 \ddot{\theta} + a_4 f_0 \ddot{\theta} + a_5 f_0 \ddot{\theta} + a_6 \ddot{\theta} \ddot{\theta}$	
5	$T_{\text{extinuous}} = a_0 + a_1 l_0 + a_2 \bar{\theta} + a_3 \bar{\theta} + a_4 l_0^2 + a_3 l_0 \bar{\theta}^2 + a_6 \bar{\theta}^2$	t
6	$T_{cylinder} = a_0 + a_1 f_0 + a_2 f_0 \ddot{\theta} + a_3 f_0 \ddot{\theta} + a_4 \ddot{\theta}^2 + a_5 \ddot{\theta} \ddot{\theta} + a_6 \ddot{\theta}^2$	
7	Testimus = 20 + 21 to + 22 0 + 23 0 + 24 12 +	
	$a_3 \mathcal{L}_0 \ddot{\theta} + a_5 \mathcal{L}_0 \ddot{\theta} + a_7 \ddot{\theta}^2 + a_8 \ddot{\theta} \ddot{\theta} + a_9 \ddot{\theta}^2$	

MAILING ADDRESS OF SENDER:

Carol G. Stovsky Standley Law Group LLP 495 Metro Place South Suite 210 Dublin, OH 43017-5319

PATENT NO. 6,866,024 B2

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,866,024 B2 : March 15, 2005 DATED

INVENTOR(S): Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

and insert - Table 5. Various Basis Functions

Function Number	Basis Function
1	$T_{\text{estimate}} = a_0 + a_1 f_{\theta} + a_2 \tilde{\theta} + a_3 \tilde{\theta}$
2	$T_{\text{anisons}} = a_0 + a_1 f_{\theta} + a_2 \dot{\theta} + a_3 \ddot{\theta} + a_4 \dot{\theta}^2$
3	$T = a_0 + a_1 f_{\theta} + a_2 f_{\theta} \dot{\theta} + a_3 f_{\theta} \dot{\theta} + a_4 \dot{\theta} \dot{\theta}$
4	$T = a_0 + a_1 f_0 + a_2 \ddot{\theta} + a_3 \ddot{\theta} + a_4 f_0 \dot{\theta} + a_5 f_0 \ddot{\theta} + a_6 \dot{\theta} \ddot{\theta}$
5	$T = a_0 + a_1 f_0 + a_2 \ddot{\theta} + a_3 \ddot{\theta} + a_4 f_0^2 + a_5 \dot{\theta}^2 + a_6 \ddot{\theta}^2$
6	$T_{\text{columbs}} = a_0 + a_1 f_\theta + a_2 f_\theta \ddot{\theta} + a_3 f_\theta \ddot{\theta} + a_4 \dot{\theta}^2 + a_3 \dot{\theta} \ddot{\theta} + a_6 \ddot{\theta}^2$
7	$T_{estimate} = a_0 + a_1 f_{\theta} + a_2 \tilde{\theta} + a_3 \tilde{\theta} + a_4 f_{\theta}^2 + a_5 f_{\theta} \tilde{\theta} + a_6 f_{\theta} \tilde{\theta} + a_7 \tilde{\theta}^2 + a_8 \tilde{\theta} \tilde{\theta} + a_9 \tilde{\theta}^2$

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PATENT NO. 6,866,024 B2

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

: 6,866,024 B2 PATENT NO : March 15, 2005 DATED INVENTOR(8) : Rizzoni et al.

> It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 13, lines 26-44.

please delete "

TABLE 6

Various Sub-Basis Functions

Function Number	Sub-Basis Function
1	$a_1 = b_{0,1} + b_{1,1} \cdot rpm + b_{2,1} \cdot ltq$
2	a. = b., + b., • rom + b.; • itd + b.; • rpm • iwi
3	$\mathbf{a}_1 = \mathbf{b}_{-1} + \mathbf{b}_{-1} \cdot \mathbf{rom} + \mathbf{b}_{-1} \cdot \mathbf{i}(\mathbf{q} + \mathbf{b}_{-1}) \cdot \mathbf{rom}^{-1} + \mathbf{b}_{-1} \cdot \mathbf{i}(\mathbf{q})$
4	$9^{4} = p^{4} + p^{4} \cdot 10m + p^{3} \cdot 100 + p^{3} \cdot 100 \cdot 100 + p^{4}$
•	hrom* + b · ltu*
5	$a_1 = b_{0,1} + b_{1,1} \cdot pm + b_{2,1} \cdot l(q + b_{3,1} \cdot pm \cdot l(q + b_$
6	$a_1 = b_{01} + b_{11} \cdot b_{11} + b_{21} \cdot b_{12} + b_{21} \cdot b_{12} \cdot b_{12} + b_{21} \cdot b_{12} + b_{21} \cdot b_{12} + b_{21} \cdot b_{21} \cdot b_{21} + b_{21} \cdot b_{21} \cdot b_{21} + b_{21} \cdot b_{21} \cdot b_{21} + b_{21} \cdot b_{2$
7	$\mathbf{a}_1 = \mathbf{b}_{0,1} + \mathbf{b}_{0,1} \cdot \mathbf{rpm} + \mathbf{b}_{2,1} \cdot \mathbf{k}\mathbf{q} + \mathbf{b}_{3,1} \cdot \mathbf{v}_{s}$
8	$a_i = b_{0,i} + b_{1,i} \cdot pm \cdot \theta_i + b_{2,i} \cdot ltq \cdot \theta_i$
9	$\begin{array}{l} a_1 = b_{0,1} + b_{1,1} \cdot \text{rpm} + b_{2,1} \cdot \text{liq} + b_{3,1} \cdot \theta_s + \\ b_{4,1} \cdot \text{rpm} \cdot \theta_s + b_{4,1} \cdot \text{liq} \cdot \theta_s + b_{4,1} \cdot \theta_s^2 + \\ b_{7,1} \cdot \text{rpm} \cdot \theta_s^2 + b_{6,1} \cdot \text{liq}^2 \cdot \theta_s^2 \end{array}$

MAILING ADDRESS OF SENDER:

Carol G. Stovsky Standley Law Group LLP 495 Metro Place South Suite 210 Dublin, OH 43017-5319

PATENT NO. 6,866,024 B2

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

: 6,866,024 B2 PATENT NO

.: March 15, 2005 DATED

INVENTOR(S): Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

and insert - Table 6. Various Sub-Basis Functions

Function Number	Sub-Basis Function
1	$a_1 = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq$
2	$a_{i} = b_{0,i} + b_{i,j} \cdot rpm + b_{2,j} \cdot ltq + b_{3,j} \cdot rpm \cdot ltq$
3	$a_1 = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm^2 + b_{4,i} \cdot ltq^2$
4	$a_1 = b_{0,l} + b_{1,l} \cdot rpm + b_{2,l} \cdot ltq + b_{3,l} \cdot rpm \cdot ltq + b_{4,l} \cdot rpm^2 + b_{5,l} \cdot ltq^2$
5	$a_1 = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq +$ $b_{3,i} \cdot rpm^2 + b_{3,i} \cdot ltq^2 + b_{6,i} \cdot rpm^2 \cdot ltq^2$
6	$a_{i} = b_{0,i} + b_{i,j} \cdot rpm + b_{2,i} \cdot ltq + b_{3,j} \cdot rpm \cdot ltq$ $+ b_{4,j} \cdot rpm^{2} + b_{5,i} \cdot ltq^{2} + b_{6,i} \cdot rpm^{2} \cdot ltq$ $+ b_{7,i} \cdot rpm \cdot ltq^{2} + b_{8,i} \cdot rpm^{2} \cdot ltq^{2}$
7	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta_i$
8	$a_{i} = b_{0,i} + b_{i,j} \cdot rpm + b_{2,i} \cdot ltq$ $+ b_{3,i} \cdot \theta_{s} + b_{4,i} \cdot rpm \cdot \theta_{s} + b_{3,i} \cdot ltq \cdot \theta_{s}$
9	$a_{i} = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta_{s}$ $+ b_{4,i} \cdot rpm \cdot \theta_{s} + b_{5,i} \cdot ltq \cdot \theta_{s} + b_{6,i} \cdot \theta_{s}^{2}$ $+ b_{7,i} \cdot rpm \cdot \theta_{s}^{2} + b_{8,i} \cdot ltq^{2} \cdot \theta_{s}^{2}$

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO

: 6,866,024 B2

DATED

: March 15, 2005

INVENTOR(S) : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 13, lines 51-53,

please delete *

$$\varepsilon = \min_{\substack{b \mid ji}} \left(\sum_{i=1}^{N} (a_{trained,i} - a_{estimated,i})^{2} \right)$$

(23)

and insert – $\varepsilon = \min_{b_{j,l}} \left(\sum_{i=1}^{N} (a_{trained,i} - a_{estimated,i})^2 \right)$ (23) -

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